

MULTIMEDIA



UNIVERSITY

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# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 1, 2015/2016 SESSION

**TWS 2551 – WEB SERVICES**

( All sections / Groups )

17 OCTOBER 2015

2.30 pm – 4.30 pm

( 2 Hours )

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### INSTRUCTIONS TO STUDENTS

1. This question paper consists of 5 pages only.
2. Attempt **ALL** the questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write your answers in the Answer Booklet provided.

**Question 1**

a) Draw the Web Service technical stack and briefly explain each layer. [4 marks]

b) What happens if we do not have WSDL and UDDI? Can we still call the functions?  
[3 marks]

c) Why is it difficult to extract information from HTML page? [1 mark]

d) Why do we need to have attributes in XML whereby all the data can be stored using elements? Provide an example to help justify your answer. [2 marks]

**Question 2**

a) XPath is used in XSLT to specify the path of data that is stored in XML document. What is the difference between // and / in XPath? [2 marks]

b) Write a DTD that defines the structure of a courier shipment. The courier shipment should contain the information about the sender, receiver, product details and the shipment tracking number. [4 marks]

c) Write a Schema that matches the DTD in question 2 (b). [4 marks]

**Question 3**

a) Which part of the SOAP message is considered optional and what kind of information does it contain? [2 marks]

Continued.....

- b) Consider the following C# code:

```
public class Service : System.Web.Services.WebService
{
    public Service () {
        //Uncomment the following line if using designed
        components
        //InitializeComponent();
    }

    [WebMethod]
    public Movie movie(string name, long id) {
        Movie m = new Movie();
        m.name = name;
        m.id = id;
        return m;
    }

    public class Movie
    {
        public string name;
        public long id;
        public string description;

        public void setName(string Name)
        {
            name = Name;
        }
        public void setId(long Id)
        {
            id = Id;
        }
    }
}
```

Write the SOAP request for the WebMethod movie. [4 marks]

- c) Write the SOAP response for the given WebMethod movie (refer question 3 (b)).

[4 marks]

Continued.....

Question 4

Consider the following WSDL

```
<?xml version="1.0" encoding="utf-8" ?>
<wsdl:definitions xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
    xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
    xmlns:tns="http://tempuri.org/"
    xmlns:s="http://www.w3.org/2001/XMLSchema"
    xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
    xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
    targetNamespace="http://tempuri.org/"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
    <wsdl:types>
        <s:schema elementFormDefault="qualified"
            targetNamespace="http://tempuri.org/">
            <s:element name="abc">
                <s:complexType />
            </s:element>
            <s:element name="abcResponse">
                <s:complexType />
            </s:element>
            <s:element name="age">
                <s:complexType />
                <s:sequence>
                    <s:element minOccurs="1" maxOccurs="1" name="x" type="s:int" />
                </s:sequence>
            </s:complexType>
            </s:element>
        </s:schema>
        </wsdl:types>
        <wsdl:message name="testSoapIn">
            <wsdl:part name="parameters" element="tns:test" />
        </wsdl:message>
        <wsdl:message name="testSoapOut">
            <wsdl:part name="parameters" element="tns:testResponse" />
        </wsdl:message>
        <wsdl:message name="testingSoapIn">
```

Continued....

```
<wsdl:part name="parameters" element="tns:testing" />
</wsdl:message>
- <wsdl:message name="testingSoapOut">
  <wsdl:part name="parameters" element="tns:testingResponse" />
</wsdl:message>
- <wsdl:portType name="ServiceSoap">
- <wsdl:operation name="test">
  <wsdl:input message="tns:testSoapIn" />
  <wsdl:output message="tns:testSoapOut" />
</wsdl:operation>
- <wsdl:operation name="testing">
  <wsdl:input message="tns:testingSoapIn" />
  <wsdl:output message="tns:testingSoapOut" />
</wsdl:operation>
</wsdl:portType>
- <wsdl:binding name="ServiceSoap" type="tns:ServiceSoap">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
- <wsdl:operation name="test">
  <soap:operation soapAction="http://tempuri.org/test" style="document" />
- <wsdl:input>
  <soap:body use="literal" />
</wsdl:input>
- <wsdl:output>
  <soap:body use="literal" />
</wsdl:output>
</wsdl:operation>
- <wsdl:operation name="testing">
  <soap:operation soapAction="http://tempuri.org/testing" style="document"
  />
- <wsdl:input>
  <soap:body use="literal" />
</wsdl:input>
- <wsdl:output>
  <soap:body use="literal" />
</wsdl:output>
</wsdl:operation>
- <wsdl:binding name="ServiceSoap12" type="tns:ServiceSoap">
  <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
- <wsdl:operation name="test">
  <soap12:operation soapAction="http://tempuri.org/test" style="document"
  />
- <wsdl:input>
  <soap12:body use="literal" />
</wsdl:input>
- <wsdl:output>
  <soap12:body use="literal" />
</wsdl:output>
```

Continued.....

```
</wsdl:operation>
- <wsdl:operation name="testing">
  <soap12:operation soapAction="http://tempuri.org/testing"
    style="document" />
- <wsdl:input>
  <soap12:body use="literal" />
</wsdl:input>
- <wsdl:output>
  <soap12:body use="literal" />
</wsdl:output>
</wsdl:operation>
</wsdl:binding>
- <wsdl:service name="Service">
- <wsdl:port name="ServiceSoap" binding="tns:ServiceSoap">
  <soap:address location="http://0.0.0.0:1975/WebSite/Service.asmx" />
</wsdl:port>
- <wsdl:port name="ServiceSoap12" binding="tns:ServiceSoap12">
  <soap12:address location="http://0.0.0.0:1975/WebSite/Service.asmx" />
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```

- a) Where is the service located? If the service is uploaded to a hosting (not a localhost), which part of the URL will most probably change? [2 marks]
- b) Write a sample C# code to invoke/call the service. Assume that the Web reference name is 'abc'. [3 marks]
- c) Explain what is white page, yellow page and green page in UDDI? [3 marks]
- d) List down and explain two causes that can affect interoperability in Web Service?  
[2 marks]

End of Page.